

Claims

- [c1] 1) A blade (19) for a stator (11) of a variable-geometry turbine (1), particularly for aircraft engines; said stator comprising a supporting structure (14, 15); said blade comprising an airfoil profile (20) hinged to said supporting structure (14, 15) to rotate about an axis (24) inside a conduit (18) and comprising a pressure front wall (30) and a suction rear wall (29); two end walls (34, 35) located at opposite ends of said airfoil profile (20), with respect to a direction parallel to said axis (24), and cooperating in sliding manner with said supporting structure (14, 15); and cooling means (74) for cooling said end walls (34, 35); said cooling means (74) comprising a number of holes (68) for the passage of a cooling fluid from an inner cavity (39) of said blade (19); characterized in that said holes (68) have respective outlets (69) close to an outer edge (70, 71) joining at least one of said end walls (34, 35) and said front wall (30).
- [c2] 2) A blade as claimed in Claim 1, characterized in that the outlets (69) of said holes (68) are formed in said end wall (34, 35).
- [c3] 3) A blade as claimed in Claim 2, characterized in that

the outlets (69) of said holes (68) are formed in a line parallel to said outer edge (70, 71).

[c4] 4) A blade as claimed in Claim 1, characterized in that said cooling means (74) comprise guide means (44, 45) for guiding a stream (F1) of cooling fluid inside said blade (19) and tangentially to said end wall (34, 35).

[c5] 5) A blade as claimed in Claim 4, characterized in that said guide means (44, 45) define an inlet (48, 51) and an outlet (68) in such positions as to cause said stream (F1) of cooling fluid to flow in the opposite direction with respect to an external tangential stream (F2) of cooling fluid, which, in use, flows from said holes (68) towards said rear wall (29).

[c6] 6) A blade as claimed in Claim 5, characterized in that said guide means (44, 45) comprise at least one further end wall (44, 45) facing said end wall (34, 35); said end wall (34, 35) and said further end wall (44, 45) defining between them a substantially tangential passage (62) having an outlet (68) coincident with said holes, and an inlet (48, 51) formed in said further end wall (44, 45).

[c7] 7) A blade as claimed in Claim 6, characterized in that said further end wall (44, 45) comprises an intermediate portion (47), and a first and second end portion (49, 50)

located on opposite sides of said intermediate portion (47) and adjacent to said rear wall (29) and said front wall (30) respectively; said second end portion (50) having no openings.

- [c8] 8) A blade as claimed in Claim 7, characterized in that said inlet (48, 51) comprises first holes (51) formed in said first end portion (49) and in a row substantially parallel to said rear wall (29).
- [c9] 9) A blade as claimed in Claim 8, characterized in that said inlet (48, 51) comprises second holes (48) formed in said intermediate portion (47) and in a row substantially parallel to the chord of said airfoil profile (20).
- [c10] 10) A blade as claimed in Claim 6, characterized in that said further end wall (44, 45) forms part of an insert (41) housed in said inner cavity (39).
- [c11] 11) A blade as claimed in Claim 10, characterized in that said insert (41) comprises two lateral walls (55, 54) facing said front wall (30) and said rear wall (29) respectively, and forced onto respective supporting portions (56) on said front and rear walls (30, 29); each said lateral wall (55, 54) defining a chamber (59) with the relative said front or rear wall (30, 29); and separating means (56) being provided to separate said chamber (59)

from said passage (62).

[c12] 12) A blade as claimed in Claim 11, characterized in that said separating means (56) comprise two ribs (56) integral with said front (30) or rear (29) walls and defining said supporting portions.

[c13] 13) A blade as claimed in Claim 1, characterized in that said holes (68) are formed in directions substantially parallel to said axis (24).